Catalogue of American Amphibians and Reptiles.

ROSSMAN, DOUGLAS A., AND VAN WALLACH. 1987. *Adelophis, A. copei, A. foxi.*

Adelophis Dugès
Mountain Meadow Snakes

Adelophis Dugès, in Cope, 1879:265. Type species, *Adelophis copei* Dugès, in Cope, 1879, by original monotypy.

● CONTENT. Two species, *Adelophis copei* and *A. foxi*, are recognized. See species accounts.

● DEFINITION. *Adelophis* are small (maximum length: 479 mm), moderately slender thamnophiine snakes. The head is barely wider than the neck, becoming narrower in the snout region, which is subconical; the crown is strongly arched in profile. The eyes are of moderate size, their diameter ranging from about 15.5–18.5% of head length; the pupil is round. The head scales are generally normal for colubrids (somewhat reduced in *copei*), usually with 1 or 2 nasals, 1 loreal (none in *copei*), 1 preocular, 2 postoculars, 1 + 2 temporals (usually 1 + 1 in *copei*); 5 supralabials, the 4th and 5th equally large (5th much larger in *copei*), the 3rd and 4th entering the eye; 5 or 6 infralabials. Ventrals number 132–137 in females, 132–139 in males. Subcaudals are divided and number 48–57 in females, 50–64 in males. The anal plate is undivided. Dorsal scales are imbricate, strongly keeled, and slightly notched posteriorly without apical pits. The normal scale row formulas are 17-17-17 (*foxi*) and 15-15-15 (*copei*). Tail length constitutes about 19–23% of total length in adult females, 20–25.5% in adult males. The 20–24 maxillary teeth are moderately slender and slightly recurved, decreasing slightly in size posteriorly. In *A. foxi* (no bones save the maxilla have been examined in *A. copei*) the dorsal nasal laminae are narrow, lanceolate, and in very narrow contact with the premaxilla. The combined frontal bones are nearly one-third again as long as they are broad. The parietal bone has a well-defined shield that is very broad posteriorly. The quadrate is greatly expanded dorsally, but the supratemporal is reduced. The prefrontal is as long as it is high, due to a well-developed anterolateral process. The interorbital foramen is large. The basioccipital process is very low and there is no ventral keel on the parasphenoid, which is extremely narrow. The dorsal pattern consists of 1 (*foxi*) or 3 (*copei*) light stripes and 2 (*copei*) or 4 (*foxi*) dark stripes on a grayish brown or olive brown ground color. In adult *foxi* the center and posterior edge of each ventral is corn yellow overlaid with buff, the lateral margins brown like the dorsum; in juveniles the venter appears dull white. Observations on ventral coloration in fresh *copei* are lacking. The top and sides of the head are similar to the dorsal ground color; the labials (except for the anterior supralabials), chin, and throat are colored like the venter. The everted hemipenis of *foxi* is single with the distal half greatly expanded (3 times wider than the proximal half). The sulcus spermaticus is simple and terminates apically between raised lips. The apical surface and adjacent apical margin are nude. The remainder of the organ is spinose, the spines being very small on the expanded portion, but becoming larger proximally. One enlarged basal hook is immediately adjacent to the sulcus (this hook lacking in *copei*); two others are on the opposite side of, and somewhat removed from, the sulcus.

In *A. foxi* (no myological data are available for *A. copei*) the *M. adductor mandibulae externus medialis* has a slip originating from the anterior part of the supraoccipital crest. The belly of the *M. depressor mandibulae* is very broad, and the muscle has a slip that originates from the aponeurosis over the dorsal muscles of the neck. The supraoccipital ligament is lacking.

● DESCRIPTIONS AND ILLUSTRATIONS. See species accounts.

● DISTRIBUTION. The genus ranges from southern Durango southeastward across the southern edge of the Mexican Plateau in the states of Jalisco, Guanajuato, Michoacán, and Morelos.

● FOSSIL RECORD. None.

● PERTINENT LITERATURE. The only study to discuss both species of *Adelophis* was by Rossman and Blaney (1968). See species accounts for other references.

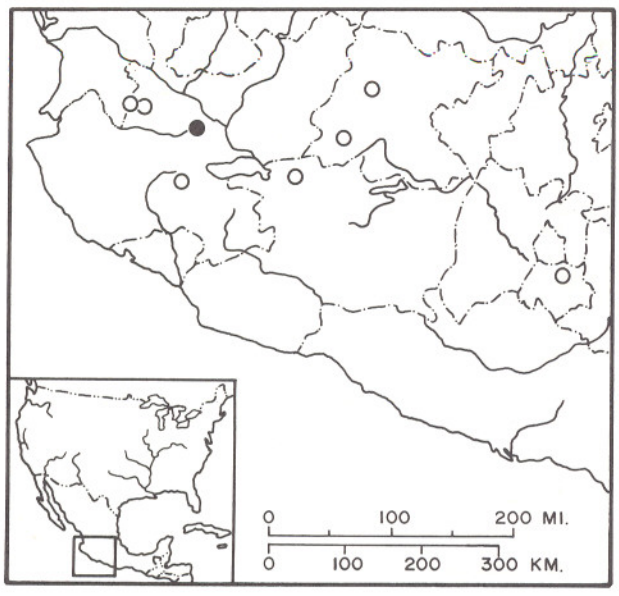
● KEY TO SPECIES.

Dorsal scales in 15-15-15 rows; no loreal scale; posterior genials longer than anterior pair; five infralabials; 5th supralabial more than twice as long as the 4th; no paravertebral dark stripes; a pair of lateral pale stripes ..... *A. copei*

Dorsal scales in 17-17-17 rows; loreal present; posterior genials shorter than anterior pair; six infralabials; 4th and 5th supralabials subequal in length; a pair of paravertebral dark stripes; no lateral stripes ..... *A. foxi*

● REMARKS. Cope (1879) considered *Adelophis* to be related to *Tropidoclonion*, a view reaffirmed by Dugès (1887), Werner (1929), and Amaral (1929). On the other hand, Garman (1883) considered *A. copei* to be a *Storeria*. Boulenger (1893) grouped the members of the genera *Storeria*, *Tropidoclonion*, and *Clonophis* together with *Adelophis copei* in the genus *Ischnognathus*. Dunn (1931) reemphasized the generic distinctness of *Adelophis* and suggested that both it and *Tropidoclonion* are "degenerate forms allied to and probably descended from *Thamnophis*." This suggestion was later supported by Rossman and Blaney (1968), based on their examination of external anatomy, cranial osteology, and hemipenes. Taylor (1942) had also reaffirmed the validity of the genus, after comparing it with *Storeria* and *Tropidoclonion*, but he gave no indication of its affinities. Varkey (1979), in a study of the comparative cranial myology of the Thamnophiini, found that *Adelophis* has a relatively large number of advanced (derived) character states and seems to be one of the most myologically specialized of the semifossorial genera; its intergeneric affinities were not clear. Lawson (1985) concluded that "the molecular evidence for the association of *Adelophis* with the other thamnophiine semifossorial genera is relatively weak, and the possibility remains that *Adelophis* could have diverged from the thamnophiine main line at about the same time as the lineage giving rise to *Nerodia* and *Thamnophis*."

● ETYMOLOGY. The name *Adelophis* is derived from the Greek *adēlos* meaning "uncertain, obscure" and *ophis* meaning "snake"; it refers to Dugès' uncertainty as to the taxonomic affinities of this genus.



MAP 1. Distribution of *Adelophis copei*. Solid circles mark the type locality, hollow symbols mark other known localities.

Adelophis copei Dugès
Cope's Mountain Meadow Snake

Adelophis copei Dugès, in Cope, 1879:265. Type-locality, "Guadalajara, Mexico." No date or collector was given. The holotype apparently has been lost (Dugès, 1887). An unnumbered specimen from Cupátaro (=Tupátaro?), Guanajuato, in the Dugès Museum, Guanajuato, was designated the neotype by Smith (1943).

Storeria copei: Garman, 1883:31.

Ischnognathus copii: Boulenger, 1893:289.

Ischnognathus (*Tropidoclonium*) *copii:* Werner, 1929:38.
Tropidoclonion copei: Amaral, 1929:150

• CONTENT. *Adelophis copei* is monotypic.

• DEFINITION. The smaller member (maximum total length: 392 mm) of the genus *Adelophis*, characterized by: 15-15-15 dorsal scale rows; absence of a loreal; usually a single secondary temporal; the 5th supralabial much larger than the 4th; 133 ventrals in only known female, 132–138 in males; 50 subcaudals in only known female, 50–54 in males; tail 19% of total length in only known female, 20–21% in males; dorsal pattern with 3 pale stripes and 2 dark stripes on an olive brown ground color; 23–24 maxillary teeth.

• DESCRIPTIONS. Dugès (in Cope, 1879) provided the original description of *copei*. Taylor (1942) described a specimen from Jalisco, including dentition, scutellation, color and pattern, and hemipenis. Smith (1943) provided a description of the neotype from Guanajuato plus an additional specimen from Morelos. A description of the neotype was repeated by Smith and Necker (1943).

• ILLUSTRATIONS. The first illustrations of *A. copei* appeared in Dugès (1887) and consisted of drawings of the full body, three head views, a portion of the trunk, and a dorsal scale. Bocourt (1893) refigured the three head views from Dugès (1887). Smith and Necker (1943) provided photographs of the head and body. Photographs of the head and body, plus a drawing of the maxilla, are found in Rossman and Blaney (1968).

• DISTRIBUTION. Smith and Taylor (1945) listed localities for *A. copei*. An additional specimen was reported by Rossman and Blaney (1968), who also provided a range map with all known localities. Rossman (1985) reported the first specimen from Michoacán.

• FOSSIL RECORD. None.

• PERTINENT LITERATURE. Smith (1943) designated a neotype from the Dugès collection.

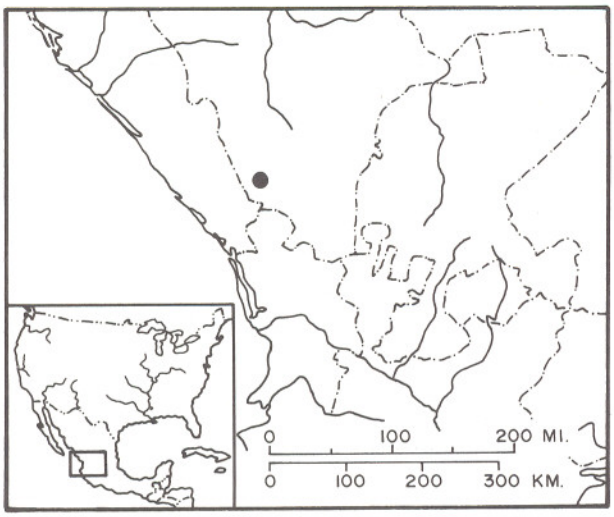
• ETYMOLOGY. The name *copei* honors Edward Drinker Cope, the great 19th Century innovator in herpetological systematics.

Adelophis foxi Rossman and Blaney
Fox's Mountain Meadow Snake

Adelophis foxi Rossman and Blaney, 1968:1. Type-locality, "1/4 mi. E Mil Diez (approx. 2 mi. W El Salto), Durango." Holotype, Louisiana St. Univ. Mus. Zool. 14330, adult female collected by D. A. Rossman and R. M. Blaney. 16 July 1966.

• CONTENT. *Adelophis foxi* is monotypic.

• DEFINITION. The larger member of the genus *Adelophis*, characterized by: 17-17-17 dorsal scale rows; presence of a loreal; two posterior temporals; 4th and 5th supralabials subequal in size; 132–137 ventrals in females, 133–139 in males; 48–57 subcaudals in females, 52–64 in males; tail 21–23% of total length in females, 21.5–25.5% in males; dorsal pattern with 1 pale stripe and 4 dark stripes on a grayish brown or olive brown ground color; 20–21 maxillary teeth.



MAP 2. Distribution of *Adelophis foxi*.

• DESCRIPTION. The original description of *A. foxi* appeared in Rossman and Blaney (1968). In addition to describing variation in scutellation and color pattern, they discussed diet, reproduction, and ecology. Scale microdermatoglyphics were described and illustrated by Blaney (1977). Varkey (1979) discussed the cranial myology of *A. foxi*, and Lawson (1985) analyzed the protein chemistry by electrophoresis.

• ILLUSTRATIONS. Rossman and Blaney (1968) included photographs of the head and body of *A. foxi* and provided drawings of the hemipenis and maxilla.

• DISTRIBUTION *Adelophis foxi* is known only from the type locality in southwestern Durango, where it occurs in a damp mountain meadow surrounded by pine forest.

• FOSSIL RECORD. None.

• PERTINENT LITERATURE. Rossman and Blaney (1968) published the only comprehensive account of the species.

• ETYMOLOGY. The name *foxi* honors Wade Fox, a major contributor to our understanding of the systematics of North American natricine snakes.

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